

An Experimental Study into the Role of Information Communication Technology (ICT) in Enhancing Second Year EFL Students' Written Production at Chadli Bendjedid University El-Tarf

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Abstract

This quantitative research aims at investigating the effectiveness of Information Communication Technology (ICT) mainly the computer (word processor) on EFL students' writing performance. An experimental study was conducted at the Department of English Language, Chadli Bendjedid University –EL-Tarf during the first semester of the academic year 2019/2020 to measure students' achievement in writing. The sample of the study consisted of (100) students enrolled in second year of English and were randomly assigned to both experimental and control groups. A writing pretest was given to both groups at the beginning of the study to make sure that the students have the same level and the same test was given as a posttest at the end of the experiment. The findings showed significant difference between the control and the experimental groups in favour of the latter.

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Students demonstrated a positive attitude and were excited using ICTs to improve their writing skill.

Key words: Information communication technology (ICT); computer (word processor); pretest; posttest ; writing skill.

1. Introduction:

Writing is thought to be one of the most complicated skills in the learning/teaching process. It involves a great attention in foreign language teaching and students have to receive continuous feedback and have to practise writing which will enable them to achieve better in writing. Hence, we can dare and say that writing is the most important technology that has ever invented.

At university, students of foreign language especially English use writing to reach academic achievement. That is to say, they write paragraphs, essays and even make research projects and in doing so, they go through steps to reach the final production. For that reason, students have to develop their writing to reach their goals. One of the effective ways used to enhance writing performance is ICTs; computer (word processor).

So, students have to be exposed to these ICT tools extensively to enhance their writing level. This study intends to point the shift towards multi-modal electronic resources which aims to replace the obsolete paradigm characterized by mono-source textbook curricula, domineering lectures and passive recipient learners. Thus, of course, necessitates the incorporation of modern media which help maximize students' potential and improve learners' productive skills especially writing. Moreover, in this study, we are investigating the effect of the word processor on developing

EFL learners' writing performance in comparison to the traditional method used by most teachers of English hoping to provide some practical suggestions for teachers of English at Chadli Bendjedid University El-Tarf.

1. 1. **Statement of The Problem**

At the University of Chadhli Bendjedid (EL-TARF) at the Department of English, the English language teachers and learners do not resort enough to information communication technologies due to the fact that EFL programmes do not include those technologies as essential means and main components in the teaching process. Teachers view modern media as extra teaching aids whereas in the developed countries these are seen as necessary ones. So, we assume that the little attention paid to the integration of ICT in language teaching classrooms and the lack of technical support, and interest proves learners' poor written production.

Furthermore, as a teacher of written expression, we have noticed that students have weak writing skills; they cannot produce a well organized piece of writing free of errors. Besides, their writings are incoherent and they have poor language as they suffer from vocabulary shortage as well. For that, they need to develop their linguistic abilities.

In fact, students at the department of English reported that their weaknesses in writing are because of the inappropriate methods of teaching writing. So, we believe that the use of the computer (word processor) may positively enhance students' writings and become better writers.

1. 2. **Objectives of the Study**

This study intends to point the shift towards multi-modal electronic resources which aims to replace the obsolete paradigm characterized by

mono-source textbook curricula, domineering lectures and passive recipient learners. Thus, of course, necessitates the incorporation of modern media which help maximize students' potential and improve learners' productive skills especially writing.

Moreover, in this study, we are investigating the effect of the word processor on developing EFL learners' writing performance in comparison to the traditional method used by most teachers of English, hoping to provide some practical suggestions for teachers of English at Chadli Bendjedid University El-Tarf.

1. 3. Research Questions

In an attempt to deal with this issue, the following are our research questions:

- What effect do computer (word processor) has on students' overall writing competence?
- To what extent the use of the computer (word processor) enhance EFL students' written production?

1. 4. Hypothesis

On the basis of the main question of our research, we assume that:

- The use of computer (word processor) will enhance EFL students' writing competence.

1. 5. Research Methodology

In this study, we are exploring the effects of the integrated ICT on students' achievements at the university level in English Foreign language classes. To measure students' achievements, we must experiment the innovative teaching approach, so that we opted for the experimental approach.

It is generally agreed that any experimental study is carried out to explore the strength of relationship between the independent and the dependent variables; our variables are computer (word processor), students' written production and the scores of the tests. This experimental design must make compromises and generalizations. Our intention is to see through experiment whether and to what extent the independent variable can affect the dependent variable.

1. 6. Participants

This study is one in which every unit in the population has a chance of being selected in the sample and this probability can be accurately determined. The combination of these traits makes it possible to produce unbiased estimates of population totals, by weighing sampled units according to their probability of selection. "Randomization is analogous to insurance in that it is a precaution against disturbances that may or may not occur, and that may or may not be serious if they do occur" (Cochran and Cox edited in Singh, 2006, p.173). In other words the technique is simple random sampling.

The participants in the present study are approximately **100** students who are enrolled at Chadhli Bendjedid (EL-TARF) for whom English is a Foreign Language. These students come from different regions and belong to the same age group; their age range is between 18 and 21. In addition, most of them have been studying English as a foreign language for, at least, five years. It is to these students that writing poses a problem when they are instructed to write paragraphs.

The two groups are: the experimental group which had experienced the innovative treatment and the control group which had undergone the traditional treatment. In fact, randomizing the groups cancels the effects of

such variables like subjects' personal characteristics (sex, age, aptitude or intellectual capacity).

1. 7. Data Collection Instruments and Procedure

Pretest

The data collection consists of students' answers. The pretest is usually intended to test both groups before the experimental treatment just to make sure that the two groups are likely to be the same in terms of aptitude, intellectual capacity, language abilities and skills. Administering a pretest can give us a clear idea about the two groups' genuine level. So, in order to determine the proficiency level of the students, the pretest is administered to both groups. Both groups are required to complete the pretest that is administered during a regular English lesson where the researcher is also the teacher of the lesson.

Posttest

Concerning the posttest, the posttest is aiming at finding out whether the implemented information communication technologies the computer (word processor) is effective in enhancing the subjects' writings.

In more details, the investigator after reviewing considerable writing achievement tests, Bani Abdelrahman (2013) writing achievement test has been adapted. In fact, the reason that led us to choose this test is that the test respected the aforementioned criteria. Second, it was tested in the field and expertise as it was reliable. Another reason is that it is compatible with the syllabus of the second year students: learning how to write effective paragraphs.

The professors suggested introducing different types of questions like editing a text, analyzing a paragraph into its components and rewriting sentences which were considered. The test was field-tested several times,

therefore, its internal consistency of Cronbach's Alpha reliability was determined to be 0.79 ($.8 > \alpha \geq .7$) which is statistically accepted.

The measuring scale of assessing students' writing performance is based on the following criteria: content, organization and mechanics, vocabulary, and language use.

In this study, both groups were pre-tested; the experimental and the control groups during the first semester of the academic year 2019-2020 to ensure that both groups are equivalent in terms of writing ability. The students' papers were corrected by the researcher being the teacher according to the mentioned four criteria. Then, the results were calculated according to the T-test for testing significance and difference.

However, the control group was taught to write the same paragraphs using the traditional approach as they used to do in the writing lessons using old fashioned materials. Members of the control group were taught and practised the components of the paragraph and its different types; narrative, descriptive and the like. Also, they were asked to analyze paragraphs finding and correcting errors. Moreover, they were taught how to use the punctuation marks correctly and were trained often to use different strategies in writing such as mapping, listing and free writing. The writings were in paper and pencils and used dictionaries and books to check grammar rules and spelling mistakes.

The post test was administered after winter vacation; at the mid of January 2020 to find out the effect of using computers (word processor) for teaching the skill of writing between the experimental and the control group. The teacher also corrected students' papers and computer-based writing according to the same previous criteria. The scores were calculated using the T-test.

2. Literature Review

2. 1. Definition of Information and Communication Technology (ICT)

The term ICT cannot be defined unless two other terms are defined; Informatics (Computing Sciences) and Informatics Technology. UNESCO (2002, p. 12) defined Informatics as “the science dealing with the design, realization, evaluation, use and maintenance of information processing systems, including hardware, software, organizational and human aspects and the industrial, commercial, governmental and political implications of these”. Then, informatics technology is defined “as the technological applications (artifacts) of informatics in society” (p.13).

So, information communication technology is the combination of informatics technology with communication technology. This definition implies that ICT is a technology that supports activities involving information and it is used and applied in activities of learning and in other fields like commerce, working, politics and so on. These activities are integrated on the basis of conceptual understanding and methods of informatics.

Moreover, another classification has been done by Lamb and Davidson (2005) in which they categorized ICT into embedded, coordination and dissemination:

Embedded ICTs are communication tools built into scientific tools and experiments such as sensor networks, grid computing, remotely-operated telescopes and observation devices, visualization and virtual reality tools and telemedicine tools. They are the main means to make research possible.

Coordination ICTs as e-mail, telephone, web pages, instant messaging, chat, and wikis constitute the general communication that allows researchers to plan, share data and results, write papers and maintain contacts.

Dissemination ICTs transmit the findings to the audience, such as electronic journals, popular media, weblogs and project web sites.

2. 2. Components of Information Technology

Information technology is the means of creating, managing and exchanging information, it includes all types of technology used to deal with information, such as computers, cables, satellites and telephone lines. In this article, we mainly describe and focus on the computer (word processor).

2. 3. The Computer

Technically a computer is called a “CPU” or “Central Processing Unit”, the metal box located nearby the screen or monitor holds the “brains” of the computer (Nwosu, 2008). That’s where all the actions happen and the other pieces of equipment used are all about getting information into and out of this piece of equipment (CPU).

In other words, the computer is a transferring electronic machine and a landmark in information technology history, capable of performing series of operations according to a set of logical instructions with utmost speed. Its storage capacity facilitates access to billions of characters of data in the storage and retrieval of vast and ever increasing information.

2. 4. The Roles of the Computer in Education

In the language classroom, the computer may perform important pedagogical roles; as teacher, tester, tool, data source and communication facilitator (Padurean et.al 2009).

2. 5. Computer as a Teacher

In the early years of CALL (Computer Assisted Language Learning), some teachers claimed that in the coming years, teachers would no longer be needed in schools as their roles were being taken over by computers. That is to say, computers teach students the language “computerized teaching”. Computers as teachers use multimedia CD-ROMS. In those programmes, students listen to recordings, watch videos, speak into the microphone, record their progress or learn words by clicking on pictures and hear their pronunciation. The WWW is another alternative for CD-ROMS, as such, students can practice all their skills and it is more useful and appropriate for the teacher than the CD-ROM since teachers can intervene with their own ideas or materials (Moursund, 2005).

2. 6. Computer as a Tester

Students can practice their knowledge of a specific language using different internet websites. However, these sites are very limited in terms of practice materials. Basically, the computer tests students on the already learnt structures. The practice material refers to multiple choice exercises, dual choice exercises, true or false. The only answer the computer can give is right or wrong. Despite these limitations, computer grammar or vocabulary practice is still enjoyed by students because they feel at ease, like playing and get the feedback without being afraid of the teacher’s criticism. The students can also work in groups, sit at the same computer and discuss the answers (Padurean et.al 2009).

2. 7. Computer as a Tool

Computers are seen as tools to assist students doing certain tasks to acquire FL. The large number of web-sites, pictures, projects, exercises, audio and video materials are tools in the teaching and learning process (Moursund,2005).

2. 8. Computer as a Data Source

It is a common fact that due to computers, we can access most information. Students are serving the web wandering without a particular aim. This very particular aspect is to be called random internet navigation, teachers should offer useful websites and guide them to find out information and solve their tasks (Padurean et al.2009).

2. 9. Computer as Communication Facilitator

Basically, computers are means of communication in the society in general, and considered as a tool of communication facilitator in FL teaching/learning. To put it otherwise, teachers can set up discussion forums and use them to communicate with the students, or students can exchange didactic e-mails, discuss a topic that was presented in the classroom or any topic of interest. As it is worldly known, the internet becomes the principal medium of communication, so, students can communicate via e-mail, chatting or even by participating in discussion forums (Padurean et al.2009).

We can see that the computer has not only changed the places and the quality of teaching/learning, it also influences them from a didactic and methodological side requiring and demanding special competences and training for teachers. In addition, much of language learning is taking place out of school often in online context and becoming an important and strong factor for learners. So, the application of ICT gives more opportunities for communication between learners: they can exchange information in real time, they can participate in blog discussions, work in teams on different projects, exchange emails, search for information, etc by using the authentic material provided by the internet (Rozgiene et al, 2008).

3. The Advantages of the Computer (Word Processor) in Learning Writing

The computer becomes an indispensable device for us and an important instrument used in different places; in office, at home, at school. It has several advantages:

One of the most important and useful computer software application that is used for entering, editing and formatting text based documents is the Word Processor. "The word processor could provide unique collaborative opportunities for education combining freely accessible information, and rapid feedback, the word processor is being rapidly adopted as an innovative way of constructing knowledge"(Braine,1997,p. 1). According to the author, the word processor is easy to use and rapid in providing feedback as well as learners can share their information and encourages collaborative learning and students' interaction.

Frei, Gammill & Irons (2007) pointed that Learners use word processor to improve their writing skills, consequently, feeling proud of their works. Similarly, Kern (2000) claimed that the use of word processor can improve the students' writing quality and can influence students' attitudes towards writing.





When talking about spell checking, one of the word processor functions, Warschauer (1998) pointed that this function reduces students' fear of making spelling error as it helps produce pieces of writing with fewer spelling errors. Other functions; block moving, block deleting and formatting free learners from recopying texts and facilitate revising and editing (Daiute, 1986). The author also pointed that with storage function, learners can write their thoughts in non permanent mode. In this way, students are not afraid of making mistakes or they can put their ideas into a permanent mode so they will not be afraid of losing their ideas. Word processor encourages more reading of one's own text and so more in-depth

and surface level revision with highly readable screen and neatly printed hardcopies function (Rodrigues, 1985).

Other researchers Beck & Fetherston (2003) also indicated the major functions for the word processor in writing: search, insertion and deletion, cutting and pasting, editing down, editing up and editing across. As such they claimed that the word processor is the most useful, enabling and beneficial software.

VanHuss, Forde & Woo (2011, p. 107) stated that “word processor underlines words and expressions with red and blue colours. The red colour indicates spelling errors while the blue one shows grammatical errors”. In other words, the word processor automatically underlines the spelling mistake committed by the writer with red colour. As such, the mistake is apparent and the writer in this case can press on the underlined mistake and a window contains correct suggestions will be exhibited to choose one of these correct options.

Using the computer (word processor) for teaching and learning writing is highly recommended by Stevens (1999). He viewed that the word processor greatly influences the development of students’ writing achievement in a positive way and he designed various word processor activities and exercises suggesting to be used in the computer writing-class. Some of these activities are the following:

-  Finding the missing word and rewriting it.
-  The use of search and replace letters in a certain context.
-  Double clicking a word, cutting it, and asking a student to paste it in the correct place.
-  Editing: the teacher presents a text with errors and students work individually or cooperatively (in groups or pairs) to revise it.

- ✚ Sentence completion: the teacher gives students a number of open-ended sentences or cloze exercise to complete.

3. 1. Computer (Word Processor) Versus Handwriting

When comparing computer-based writing to paper-based writing, Harmer (2001) pointed that writing is a personal issue and each one has his own style. That is to say, when writing, we write according to our desire and prompt. He added that any badly-formed piece of writing tends to have a bad effect and impression on the reader who would get bored from reading something undesirable at all. Furthermore, he asserted that whether students are producing some types of creative tasks like writing a poem, a story...or that are going to be assessed in more serious writings like a test or an exam, it is necessary for teachers to encourage them to improve and solve their problematic handwriting.

Additionally, Harmer (2001, p. 261) stated that writing with the computer is good for the following reasons:

- Word processing package removes the problem of poor handwriting that some students suffer from.
- Word processing package allows the competent user to edit his or her material at great speed and with great facility.
- Spellcheckers can ease the task of achieving correct spelling.
- If students are working in groups, a computer screen can sometimes be far more visible to the whole group than a piece of paper might be.

In the same vein, Frei, Gammill & Irons (2007) pointed that word processor is different from handwriting; in the sense that it is faster and easier than writing by hand. Also, on the computer, a person can store a

document which is not the case when using type writer. Besides, on the computer, documents are easy to be reviewed, rewritten, more formatting choices are available and correcting spelling and grammar mistakes.

Moreover, Smith, Paris & Kahn (1991, p. 49) asserted that “when they write with word processing, students often produce neater, more error-free texts than they do with paper and pencil.”

Nygaard (2010, p. 33) compared writing with a pen on a piece of paper and writing on a computer stating that “ getting familiar with writing on a keyboard, using a mouse, text viewing software and operating systems in the writing process”. Kern (2000) also viewed that electronic texts are dynamic and flexible; in the sense that there are multiple functions like to cut and paste words or paragraphs from one place to another, erasing or adding words and sentences make editing more comfortable. He further argued that the main difference between writing with the computer and writing with pan and paper is procedural knowledge. In other words, that using computers for writing is at the beginning and they are not fully incorporated into the theories of writing.

When talking about the difference between computer-based writing and handwriting, one might consider the process of writing. Researchers had expressed various views on the importance of word processor as a valuable instructional technique which focuses on the process of writing. They recognize the potential of word processor as a teaching technique for students’ writing development and for improving their attitudes and motivation in contrast to traditional teacher-centred methods.

In this respect, Bangert-Drowns (1993) claimed that when students write with the computer, they can make changes to text that would have been more cumbersome on paper. He added that these changes: addition, deletion

and substantial revision allow students attend to higher order of thinking and accordingly can write longer compositions and engage in more revision than others who write with paper and pencil. As such students' attitude towards writing is improved.

✓ **Research:** when students make a research, they can put their notes on the computer while they read which can be later incorporated into writing as quotes or paraphrased. At the same time a bibliographical file can be created while reading and which can be easily pasted later on.

✓ **Planning and Drafting:** when comes to planning and drafting, any notes written on paper have to be rewritten or typed up on another date which is a very tiring task and lots of papers are used. For example, those papers can be lost while travelling. Instead, students can use the computer (word processor) to develop their ideas freely through free writing or outlining. Once students stored their drafts and notes, it is easy then to manipulate them and incorporated into the final draft.

✓ **Redrafting:** when writing by hand, students are restricted in a leaner process; therefore, students neither can insert new information in the most appropriate place nor reorder their text which is extremely easy to do; reorder paragraphs, change anything, insert new information...etc on the computer.

✓ **Editing/Proofreading:** students have to consult dictionaries and books to check the spelling of each word that they are not sure about or any grammar issues that are faced with while writing. As such, students spend a lot of time to finish their piece of writing. If students know how to use the

computer's spell-checker and grammar checker, they will save time and effort as well as help catch mistakes that students miss.

✓ **Final Draft:** in presenting the final draft, teachers are expected well polished (word processor) writings. The hand written papers may probably suggest students' lack of motivation and be judged more critically. A legible essay with few mistakes is easier to read and can be understood better; therefore, teachers will provide more constructive comments and good grades are given.

<http://www.4.caes.hku.hk/writing/.../default-answers>

Ryan and Cooper (2008, p. 206) also said "the more students edit their writing, the more they learn about the writing process".

All in all, word processor encourages and helps students edit, revise, and proofread their written production, consequently, learn more about the writing process.

3. 2 Related Review about the Importance of the Computer (word processor) in Writing

Searching in the review of related literature especially practical studies, we find number of researchers (Robinson-Stavely and Cooper 1994; Cunningham 2000; Abu Seileek 2006; Li and Cumming 2006) assured the importance of using word processor in improving students' writing achievement. Also, they indicated that the word processor improved students' attitudes towards computer-based writing over hand-writing.

First, a practical study was conducted by Robinson et al. in (1994) with community college English composition students. In the study, students were assigned to two groups; the first group of students had done their writing using computers while the other group used papers and pencils. The

essays were scored using Writer's Workbench computer programme. The analysis of the results manifested that in the readability, spelling, grammar, number of sentences, number of words, number of complex sentences and average sentence length areas, students who used the computer scored significantly higher than those who had used paper and pencil.

Also, another study was conducted by Cunningham (2000) to investigate the usefulness of word processor in learning. The analysis of the results indicated that students were comfortable in computer-based writing class and found it more challenging because they believed that the word processor helped them to enhance their writing. Moreover, students reported the benefit of using word processor in the sense that it made them concentrate on certain aspects in their writing like grammar, organization and word choice. The results of the data also showed that word processor affected students positively and contributed to students' writing improvement by increasing the ability to write, revise and sharing ideas with others.

In addition, AbuSeileek (2006) investigated the impact of the word processor on the development of EFL learners' writing and explored their attitudes towards computer-based writing. Students in the study were assigned to two groups; the experimental group which was taught writing via word processor in the E-learning Language Laboratory, and the control group which was taught in the traditional method via paper and pencil. The groups were tested to find out the effect of the innovative approach. Along with the experiment, the researcher used a survey to investigate the students' attitudes towards computer-mediated writing. So, the results manifested the over scoring of the experimental group in the writing test and showed that students in the experimental group achieved better results and had a positive

attitude towards using computer-based writing. Abuseileek (2006) concluded that the use of word processor was very efficient method for teaching the writing skill.

A longitudinal case study was conducted by Li & Cumming (2009) to determine if the word processor changes a second language (L2) learners' writing process and improves their essays over a long period of time. The researchers started to work from the assumption that students who write with word processor tend to show positive results than those who write with paper and paper. But, they claimed that the research would yield positive results if it is undergone lengthy terms of data collection and when appropriate instruction and training are provided.

Li & Cumming (2009) compared the writing processes and products made by 29 year old Mandarin student of English with intermediate proficiency in English. The study was conducted over eight (8) months resulting in fourteen (14) compositions which were grouped into seven (7) comparable pairs of topics alternating between uses of a lap top computer and a pen and paper. The student's writing of both methods were recorded; all keystrokes were recorded electronically and all text changes were made for the pen and paper were also recorded visually, in addition to recording think aloud protocols in all sessions. Data analyses showed that word processing medium is advantageous over pen and paper medium in terms of syntactic level in the sense that there are higher scores for content and analytical ratings of the completed compositions. Also, a greater frequency of revisions made at the discourse level and more extensive evaluation of written texts in think aloud verbal reports.

We can conclude from the conducted studies that the word processor has a positive effect on students' writing abilities and built their motivation towards using computer based writing.

4. Results

In this study, the researcher administered a writing pretest for the experimental and control groups, to measure their writing performance before conducting the experiment. The results of the analysis of the pre-test scores are shown in table (1).

Table 1: **means of scores on the pretest of both groups**

Groups	Pretest
Experimental group	2.94
Control group	3.32
Differences in the means	-0.38

The table representing the pretest means of scores reveals that the control group recorded a little numerically little bit higher than the experimental group (the difference in the means is only **0.38**). This insignificant over scoring put us in position to claim that writing level is almost the same. Hence, any further over scoring in the coming tests will be due to the experimental instructions.

Table 2: **means of scores on the posttest of both groups**

Groups	Posttest
Experimental group	10
Control group	7.08
Difference in the means	2.92

According to the results displayed in the table above, we notice that the experimental group scored higher than the control group.

Now we are in a position to claim that this progress is a result of the instructional treatment. The instruction allowed the subjects of the experimental group to learn and enhance their writing. Therefore, they obtained better results than the other subjects who received traditional instruction.

5. Analysis and Interpretation

Any statistically based research requires picturing how the subjects performed on each test by means of “descriptive statistics” and “graphic representations” of all the performances. It is an attempt to “understand the logic behind experimental research in which the researcher makes claims about an entire population based on data obtained from the sample of that population” (Nunan, 1992, p. 28).

To represent the frequency distribution of the posttest’ scores values in a form of a graphic representation, a graphic histogram form can be used:

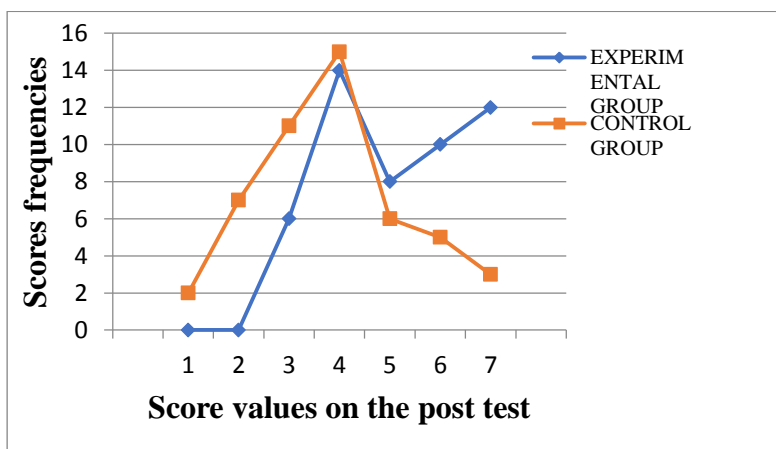


Figure1: frequency histogram for the posttest of both groups

5.1. Setting up Statistical Considerations

In order to determine the differences between the experimental and the control group in a detailed statistical picture, certain procedures should be taken which are those related to the mean, standard deviation, degree of freedom, observed statistics, critical values and hypotheses testing. We do so to see “to what extent the data are similar and the degree to which data differ” (Nunan, 1992, p.28).

The mean:

The mean is the most frequently employed measure of similarity. It is symbolized in writing by \bar{X} . The formula of this statistic is as follow

$$\bar{X} = \frac{\sum Fx}{N}$$

\bar{X} : mean Fx: score frequency N: number of scores \sum : the sum

The standard deviation

The standard deviation **SD** measures the dispersion (the extent to which a set of scores varies in relation to the mean). The formula of this statistic is as follows

$$SD = \frac{\sqrt{\sum Fx^2 - \bar{X}^2}}{N} \text{ (the square root of the variance S)}$$

The calculation of the mean and standard deviation of the experimental group is presented below:

Mean:

$$\bar{X} = \frac{\sum Fx}{N} = \frac{258}{50} = 5.16$$

$$\bar{X}_e = 5.16$$

Variance:

$$S^2_e = \frac{\sum Fx^2}{Ne} - \bar{X}_e^2 = \frac{1426}{50} - (5.16)^2$$

$$= 28.52 - 26.62$$

$$= 1.9$$

$$S^2_e = 1.9$$

Standard deviation:

$$SD = \frac{\sqrt{\sum Fx^2 - \bar{X}^2}}{N} = \sqrt{1.9} = 1.37$$

$$SD_e = 1.37$$

The calculation of the mean and standard deviation of the control group is presented below:

Mean:

$$\bar{X} = \frac{\sum Fx}{N} = \frac{190}{50} = 3.8$$

$$\bar{X}_C = 3.8$$

Variance:

$$S^2_c = \frac{\sum Fx^2}{N_c} - \bar{X}_C^2 = \frac{846}{50} - (3.8)^2$$

$$= 15.92 - 14.44$$

$$= 1.48$$

$$S^2_c = 1.48$$

Standard deviation:

$$SD = \frac{\sqrt{\sum Fx^2 - \bar{X}^2}}{N} = \sqrt{1.48} = 1.21$$

$$SD_c = 1.21$$

The t-test

To check our assumption, the appropriate testing and statistical procedure is the **t-test** which is considered to be the most suitable test to compare two means. To calculate the **t** value, the following formula needs to be applied

$$\begin{aligned}
 t_{N_1+N_2} &= \frac{(\bar{X}_1 - \bar{X}_2) \sqrt{(N_1 + N_2 - 2) N_1 N_2}}{\sqrt{(N_1 S_1^2 + N_2 S_2^2) (N_1 + N_2)}} \\
 &= \frac{(5.16 - 3.8) \sqrt{(50 + 50 - 2) 50 \times 50}}{\sqrt{(50 \times 1.37^2 + 50 \times 1.21^2) (50 + 50)}} = \frac{1.36 \sqrt{98 \times 2500}}{\sqrt{(93.5 + 73) (100)}} \\
 &= \frac{1.36 \times 494.97}{\sqrt{166.5 \times 100}} = \frac{673.15}{129.03} = 5.21 \\
 \mathbf{t} &= \mathbf{5.21}
 \end{aligned}$$

Degree of freedom

Following (Broun, 1998, p.169), “the degree of freedom (*df*) for the t-test of independent means is the first sample size minus one plus the second size minus one”. It helps to find critical value for “t”.

$$\begin{aligned}
 df &= (N_1 - 1) + (N_2 - 1) \\
 &= (50 - 1) + (50 - 1) = 91 \\
 df &= 98
 \end{aligned}$$

Alpha decision level:

The language research should once again set the alpha decision level in advance. The level may be at $\alpha < .05$ or at the more conservative $\alpha < .01$, if the decisions must be more sure” (Broun, 1998, p.159).

In this statistical test, we decided to set alpha at $\alpha < .05$ which means only 05% chance of error can be tolerated. The test is directional (tailed)

because there is a theoretical reason and a sound logic to respect one mean to be higher than the other (explicit vocabulary instruction).

Critical value:

Since alpha is set at $\alpha < .05$ for one-tailed decision, $df = 98$ and the corresponding critical value for “t”, in Fisher and Yates’ table of critical values, is **3.34**, then we get $t_{obs} > t_{crit} (5.21 > 3.34)$

Hypotheses testing:

Now, we have collected the necessary information for testing our hypothesis

Table 3: information necessary for hypothesis testing

Statistical hypotheses: $H_0: \bar{X}_E = \bar{X}_C$

$$H_1: \bar{X}_E > \bar{X}_C$$

Alpha Level: $\alpha < .05$, one-tailed (directional) decision.

Observed statistics: $t_{obs} = 5.21$

Critical value: $t_{crit} = 3.34$

Degree of freedom: $df = 98$

Since the observed statistic is greater than the critical value ($5.21 > 3.34$), the null hypothesis is rejected. Having rejected the null hypothesis, then the alternative hypothesis H_1 is automatically accepted. This means that there is only 05% probability that the observed mean difference: $\bar{X}_E > \bar{X}_C (5.16 > 3.8)$ occurred by chance, or 95% probability that it was due to other chance factors

The interpretation of results should have two parts: significance and meaningfulness. Hence, the null hypothesis H_0 is rejected at $P < .05$ which means that we are 95% sure that the relationship between the dependent variable and the independent variable did not occur by chance. It was due to the role of word processor instruction-based language teaching which contributed in developing and improving experimental group subjects' writing.

In fact, the results indicated a significant difference between the achievement of the hand-written group and the computer group as they are statistically significant.

In this study, we have investigated the effectiveness of the word processor on EFL students' writings, at university level. We hope that this research would contribute to foreign language learning and pedagogy. In other words, the word processor proved to be useful in improving the experimental group writing production and encouraged them to engage in the writing process.

Our results are compatible with the previous studies which implied that word processor helped in creating a friendly atmosphere where students collaborate and interact in writing classes. So, using the word processor helped students of the experimental group to improve their writings as compared to the control group who were taught via traditional methods and techniques. As a result, students get motivated to do their best, put more efforts in their writings and rely on themselves for correction to become autonomous and better writers.

6. Recommendations

After the analysis and the interpretation of our data, we would like to provide students and teachers of Chadli Bendjedid University with some recommendations:

Students should practise writing inside and outside the class because it is beneficial to develop their writing skills and as such their writings will make sense.

Also, it is never late to learn to write academic research or any piece of writing using the computer to develop learning in general and the writing skills in specific.

In addition, students should motivate themselves to write. In doing so, they should search for information and the internet is a great source. Hence, students can choose suitable words for their topics and make a clear connection between sentences or paragraphs. After writing their paragraphs and before delivering their final drafts, students must check that spelling and punctuation are effective. The best way to do so is to use the word processor as it has functions of deleting, editing and correcting.

For that reason, the University should provide EFL students with the necessary ICTs and published materials about using the available technological tools.

To put it differently, the University should solve the problem of computers' lab maintenance and provide more facilities like computers in the classroom and more infrastructures like projectors, printers which should be put for more utilization and practice in order to improve on ICT and learning.

Above all, the word processor proved to be effective in students' writing achievement, but since writing requires ongoing practice even outside the classroom and students need to receive quick feedback, it is

recommended to integrate internet and email service as such students will receive the necessary feedback whenever they needed it without waiting for the class to have it. Students then will practise writing more and their writing skills develop better.

On the other hand, teachers should encourage their students to use the computer to write by providing assignments and activities that are computer based or that need searching the net. As such, students will be motivated to do their homeworks and at the same time they will be trained to use the computer's technical capacities. Accordingly, students will do better on their computer assisted writings than those who are not motivated to use the computer.

Teachers should hold a positive attitude towards the integration of different ICTs into teaching. That is to say; EFL teachers can be trained on the use of the various technological tools available at the university in order to provide learning opportunities in computer assisted writing. Consequently, when teachers are provided with adequate training, then, they can introduce programmes that are based on using networking word processor in writing classrooms to ameliorate their students' writing performances.

All in all, the use of technology in EFL classes to improve EFL students' writing skills is strongly recommended. Students should practise writing inside and outside the class because it is beneficial to develop their writing skills and as such their writings will make sense. Also, it is never late to learn to write academic research or any piece of writing using the computer to develop learning in general and the writing skills in specific.

7. Conclusion

The present research is carried out to help university students develop their writing skills. As we have concluded that learning to write in foreign language is really a hard task to be performed even at a university level.

We can conclude that using the computer (word processor) proved to be very effective in enhancing students' written production as the computer encouraged students to be engaged and motivated in the classroom. Also, using the word processor created a cooperative environment where students enjoyed the classes and that contributed in developing the experimental groups' writing performance.

Moreover, the functions of the word processor enabled students edit their paragraphs easily, by doing so; it contributed to the overall development of the writing performance. At the end of this research, we can say that the computer (word processor) can be a tool used by the teachers to motivate students becoming better writers.

As ICT is new in the teaching/learning process, much of research is needed to be carried out. This study has exposed many things that could not all be covered. Therefore, we recommend a future research is needed to investigate on the whole writing process in detail rather than focusing only on the final written production to explain how ICT might influence the students' thinking and writing process.

Another study is needed to explore the impact of using the word processor and the internet in helping EFL students develop cooperation and reflection. In fact, a similar study can be conducted to investigate the effects of the word processor and the internet on the other skills like speaking, listening and reading. Furthermore, a similar research is needed to be conducted in other Algerian Universities with different EFL students' levels

to see if similar results would be yielded and for the purpose of generalization as well.

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Appendix : The Writing Achievement Test

I. Write a paragraph of about 150 words on a party you attended. Say when it happened, what happened during it, which people you met and how you felt during the party and when it ended.

.....

II. Read the following paragraph. It contains mistakes in spelling, grammar, capitalization, and punctuation. Find the mistakes and correct them. Which sentence does not belong to topic sentence? Then rewrite the corrected paragraph.

The studnts in the class comes from many different part of the world. Some are from european countries, such as france spain and Italy. Others are from middle eastern countries like Saudi Arabia and jordan. Still other students was born in asian contires including japan and korea. Koraen food are delicious. The largest nimer of students are from latin American countries like mexico Venezuela and peru. The class is an interesting mix of people from many difference countries.

.....

III. Read the following model paragraph and answer the questions.

There are several ways to learn a new language. One way is to spend a lot of time watching television and listening to the radio. Another way is to take classes at a language school or university. The best way to learn a new language is to talk to native speakers.

1. What is the topic sentence?
2. What three ways to learn a new language does the author mention?
3. What is the concluding sentence?

.....

IV. Read the topic sentence. Then read the sentences below it. Together they tell a story. The sentences are not in the correct order. Number them so they follow a logical time order. Put a 1 in front of the sentence that should come first, and so on. Then use all the sentences to write the paragraph.

Sami saved his money and spent two months travelling around the world.

_____ He spent a week in New York and then flew to London and enjoyed several weeks in Europe.

_____ When he had seen the sights in Europe, Sami took a train to Istanbul and visited many places in Asia.

_____ First, he flew from his home in Mexico City to New York City.

_____ After travelling through Asia, he went to South America and finally back home to Mexico.

V. Rearrange the following sentences.

1. There/ too/see/and/in/are/do/San Francisco /many/things.

.....

2. cold/too/or/hot/never/it/is.

.....

3. The/mild/snows/it/rarely/winters/are.

.....

4. The/is/pleasant/weather/San Francisco/very/in.

.....

5. The/has/tourist/many/attractions/city/interesting

.....

Writing Performance Evaluation Criteria

CRITERION LEVEL	CONTENT	ORGANIZATION AND MECHANICS	VOCABULARY	LANGUAGE USE
VERY GOOD	- complete realization of the task. - relevant - communicate	- well-organized - clear, coherent - mechanics of writing are well-observed	- demonstrate a wide range of vocabulary. - effective use of word choice, idioms... etc.	-mostly accurate. -few mistakes - Communication isn't impeded.

	ive			
GOOD	<ul style="list-style-type: none"> - noticeable fluency. - mostly relevant. - message can be understood 	<ul style="list-style-type: none"> - organized. - ideas are partially clear and coherent. - shows a reasonable use of writing mechanics. 	<ul style="list-style-type: none"> - reasonable use of vocabulary to convey a message. 	<ul style="list-style-type: none"> occasional errors. - no global errors. - a good use of sentence construction.
ACCEPTABLE	<ul style="list-style-type: none"> - no complete realization of task. - lack of ideas. - not communicative but meaning is conveyed. 	<ul style="list-style-type: none"> loosely organized. - no noticeable coherence. - frequent errors in the mechanics. 	<ul style="list-style-type: none"> - limited range of vocabulary. - no effective use of vocabulary to convey message. 	<ul style="list-style-type: none"> frequent grammatical errors. - use of one straight pattern.
POOR (+FALL)	<ul style="list-style-type: none"> - irrelevant ideas. - not communicative. - no conveyed message. 	<ul style="list-style-type: none"> - disconnected ideas. - not organized. - no use of writing mechanics. 	<ul style="list-style-type: none"> - little use of vocabulary. - vocabulary is insufficient to convey meaning. 	<ul style="list-style-type: none"> global grammatical errors. - no mastery of sentence structure.
VERY GOOD 9-10	3	2	2	2-3

GOOD 7-8	2	1-2	2	2
ACCEPTABLE 6-7	2	1	2	1-2
Relatively acceptable 5-6	2	1	1	1-2
POOR (+FAIL) 4	1	1	1	1
Very poor 3-4	1-2	0	1	1
Very poor but with some relevant ideas 2-3	1	0	0-1	1
Irrelevant 0	0	0	0	0